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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,826	08/27/2003	Naoya Inoue	050374-0105	3916
22428	7590	06/15/2005	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			LOUIS JACQUES, JACQUES H	
			ART UNIT	PAPER NUMBER
			3661	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/648,826

Applicant(s)

INOUE ET AL.

Examiner

Jacques H. Louis-Jacques

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08272003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-9 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsue et al [6,328,674].

Matsue et al discloses a method of controlling clutch pressure of transmission and control apparatus thereof. According to Matsue et al, there is provided a control device (e.g., 10) for a hydraulic clutch (e.g., 9) provided in a power train of a vehicle to transmit a drive torque (column 10). The control device (e.g., 10), according to Matsue et al, comprises an oil pressure supply unit (e.g., 4) which supplies oil pressure to engage the clutch and a programmable controller (column 11) programmed to count an elapsed time following a release of the clutch (abstract, column 12) and to cause the oil pressure supply unit, when the clutch is engaged from a state of release, to pre-charge the interior of the clutch in accordance with the counted time to fill the interior of the clutch with hydraulic fluid prior to engage the clutch (columns 7-9). In addition, according to Matsue et al, the controller is also programmed to cause the oil pressure supply unit to pre-charge the interior of the clutch for a longer period as the elapsed time decreases (column 8). Matsue et al further discloses a sensor (column 12) that detects a rotation speed of the engine and

that the controller is further programmed to cause the oil pressure supply unit to pre-charge the interior of the clutch with a higher pre-charge pressure as the rotation speed of the engine increases (column 12, 15 and 17). According also to Matsue et al, there is provided a controller (e.g., 10) and an oil temperature (sensor e.g., 13), wherein the controller is programmed to cause the oil pressure supply unit (e.g., 4) to pre-charge the interior of the clutch for a longer period as the temperature of the hydraulic fluid decreases and with a higher pre-charge pressure as the temperature of the hydraulic fluid decreases. See columns 8 and 9. The power train, according to Matsue et al, comprises a transmission that comprises a forward range, a reverse range, and a neutral range, and the hydraulic clutch comprises a forward clutch which is engaged in the forward range and released in ranges other than the forward range and a reverse clutch which is engaged in the reverse range and released in ranges other than the reverse range. See figures 1, 3 and 4 and columns 4 and 5. The controller, according to Matsue et al, is further programmed to count a continuous time period of selection of a range other than the forward range and pre-charge the interior of the forward clutch in accordance with the counted time, or a range other than the reverse range and pre-charge the interior of the reverse clutch in accordance with the counted time, respectively. See columns 4 and 5. Matsue et al also discloses a shift lever (e.g., 17) for selecting the forward range, the reverse range, and the neutral range (columns 11-12), wherein the controller is programmed to cause the oil pressure supply unit to engage the forward clutch when the selected range is shifted to the forward range from another range (columns 11 and 12) and the controller is programmed

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to cause the oil pressure supply unit to pre-charge the interior of the clutch for a longer period as the elapsed time decreases (columns 19-21 and 27).

3. Claims 1, 6, 8, and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsunekawa et al [US 2004/0029672].

Tsunekawa et al [US 2004/0029672] discloses a control method for lockup clutch. According to Tsunekawa et al, there is provided a control device (e.g., 50) for a hydraulic clutch (e.g., 20) provided in a power train of a vehicle to transmit a drive torque. See figure 1 and page 2. The control device, according to Tsunekawa et al, comprises an oil pressure supply unit (e.g., 40) supplying oil pressure to engage the clutch and a programmable controller (e.g., 50, 51) programmed to count an elapsed time following a release of the clutch (page 3) and to cause the oil pressure supply unit, when the clutch is engaged from a state of release, to pre-charge the interior of the clutch in accordance with the counted time to fill the interior of the clutch with hydraulic fluid prior to engage the clutch (pages 3-5). In addition, according to Tsunekawa et al, the controller is also programmed to cause the oil pressure supply unit to pre-charge the interior of the clutch for a longer period as the elapsed time decreases (page 4). Tsunekawa et al further discloses a sensor (e.g., 62) for detecting a rotation speed of the engine and that the controller is further programmed to cause the oil pressure supply unit to pre-charge the interior of the clutch with a higher pre-charge pressure as the rotation speed of the engine increases (page 3).

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4. Claims 1-6, 8-9 and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Takagi et al [6,872,166].

Takagi et al discloses an automatic transmission system and method for controlling thereby. According to Takagi et al, there is provided a control device (column 3) for a hydraulic clutch provided in a power train of a vehicle to transmit a drive torque. The control device, according to Takagi et al, comprises an oil pressure supply unit (e.g., 3) supplying oil pressure to engage the clutch and a programmable controller (e.g., 4) programmed to count an elapsed time following a release of the clutch and cause the oil pressure supply unit, when the clutch is engaged from a state of release, to pre-charge the interior of the clutch in accordance with the counted time to fill the interior of the clutch with hydraulic fluid prior to engage the clutch. See columns 5 and 6. The power train, according to Takagi et al, comprises a transmission (e.g., 2) that comprises a forward range, a reverse range, and a neutral range, and the hydraulic clutch comprises a forward clutch which is engaged in the forward range and released in ranges other than the forward range and a reverse clutch which is engaged in the reverse range and released in ranges other than the reverse range. See columns 4 and 5. The controller, according to Takagi et al, is further programmed to count a continuous time period of selection of a range other than the forward range and pre-charge the interior of the forward clutch in accordance with the counted time, or a range other than the reverse range and pre-charge the interior of the reverse clutch in accordance with the counted time, respectively. See columns 6 and 7. Takagi et al also discloses a shift lever and a position sensor (e.g., 14) for detecting a position of the shift (selector) lever. The shift (selector) lever, according to

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Takagi et al, selects the forward range, the reverse range, and the neutral range (column 4). According to Takagi et al, as explained in columns 4 and 5, Takagi et al discloses detecting a selected range of the shift lever, wherein the controller is programmed to cause the oil pressure supply unit to engage the forward clutch when the selected range is shifted to the forward range from another range. See column 5. According further to Takagi et al, the controller is programmed to cause the oil pressure supply unit to pre-charge the interior of the clutch for a longer period as the elapsed time decreases. See columns 6 and 7. Takagi et al further discloses an engine that generates driving torque and a sensor (e.g., 13) for detecting a rotation speed of the engine, wherein the controller is programmed to cause the oil pressure supply unit to pre-charge the interior of the clutch with a higher pre-charge pressure as the rotation speed of the engine increases. See columns 6 and 7.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al [6,872,166] in view of Matsue et al [6,328,674].

Takagi et al does not particularly teach pre-charging the interior of the clutch based on sensed temperature. Matsue et al, on the other hand, discloses a method of controlling

clutch pressure of transmission and control apparatus therefor. According to Matsue et al, there is provided a controller (e.g., 10) and an oil temperature (sensor e.g., 13), wherein the controller is programmed to cause the oil pressure supply unit (e.g., 4) to pre-charge the interior of the clutch for a longer period as the temperature of the hydraulic fluid decreases and with a higher pre-charge pressure as the temperature of the hydraulic fluid decreases. See columns 8 and 9. Thus, it would have been obvious to one skilled in the art at the time of the invention to be motivated to modify the hydraulic clutch control of Takagi et al by incorporating the features from the method and apparatus of control clutch pressure of Matsue et al because such modification would provide a stable operation and good speed change feeling (columns 7 and 8).

Allowable Subject Matter

7. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art do not particularly disclose determining a tentative pre-charge period based on the pre-charge pressure and the temperature of the hydraulic fluid, calculating a voidage in the interior of the clutch based on the elapsed time and the temperature of the hydraulic fluid, determining a pre-charge period based on the product of the tentative pre-charge period and the voidage, and causing the oil pressure supply unit to pre-charge the interior of the clutch for the pre-charge period.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

4,836,057	Asayama et al	Jun. 1989
5,046,174	Lentz et al	Sep. 1991
5,119,695	Milunas et al	Jun. 1992
5,128,868	Imai et al	Jul. 1992
5,231,898	Okura	Aug. 1993
5,737,979	McKenzie et al	Apr. 1998
6,088,645	Kawasaki et al	Jul. 2000
6,491,604	Katou et al	Dec. 2002

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques H. Louis-Jacques whose telephone number is 571-272-6962. The examiner can normally be reached on M-Th 5:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jacques H Louis-Jacques
Primary Examiner
Art Unit 3661

/jlj

Jacques H. Louis-Jacques
JACQUES H. LOUIS-JACQUES
PRIMARY EXAMINER